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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/438,885	11/12/1999	NAOKI MASAZUMI	15162/01300	9979

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SIDLEY AUSTIN BROWN & WOOD LLP
717 NORTH HARWOOD
SUITE 3400
DALLAS, TX 75201

EXAMINER
KOVALICK, VINCENT E

ART UNIT	PAPER NUMBER
2673	

DATE MAILED: 04/03/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/438,885	Applicant(s) MASAZUMI ET AL.
	Examiner Vincent E Kovalick	Art Unit 2673

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *23 January 2002* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

1. This Office Action is in response to Applicant's Amendment dated January 23, 2002 in response to PTO Office Action dated September 7, 2001. The amendments to the specification and claims 2-15 and the addition of new claims 17-20 have been noted and entered in the record.

Applicant's remarks relative to claims 1-16 are rendered moot in view of the introduction of new prior art that addresses the feature of controlling a driver to drive at least a part of a LCD by selectively using one of a first drive method and a second driver method.

Regarding applicant's remarks (page 16) relative to claim 15, applicant indicates claim 15 is dependent on claim 10; claim 15 teaches it being dependent on claim 14.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1, 8-11 and 19 are rejected under 35 U. S. C. 103 (a) as being unpatentable over Ueno et al. (U. S. Patent No. 6,320,562).

Relative to claim 1, Ueno et al. **teaches** a Liquid Crystal Display (LCD) device (col. 9, lines 48-67; col. 10, lines 1-67 and col. 11, lines 1-47). Ueno et al. further **teaches** a display device comprising: a liquid crystal display (LCD) having a liquid crystal material (col. 12, lines 24-25); a driver for driving said LCD (col. 12, lines 25-26 and 31-34); a controller for controlling said driver (col. 12, lines 35-36 and 39-40) to drive at least a part of said LCD by selectively using one of a first drive method and a second drive method which are different from each other in operational principle of said liquid crystal material (col. 3, lines 10-12 and 14-20).

The difference between the teaching of Ueno et al. and that of the instant invention is that the teaching of Ueno et al. is directed to a driving circuit which addresses the problem of deterioration in a display quality as opposed to the teaching of the instant invention which relates to a reflective LCD display device with a memory effect and a driving method thereof.

It would have been obvious to a person of ordinary skill in the art at the time of the invention that the teaching of Ueno et al. addresses the limitations of claim 1 of the instant invention.

Relative to claims 8-9 Ueno et al. **teaches** said display device wherein low contrast formation of an image on said LDC is possible by using said first drive method; and high contrast formation of an image on said LCD is possible by using a second drive method; wherein a first contrast of an image displayed on said LCD by using said first drive method is lower than a second contrast of an image displayed on said LCD by using said second drive method (col. 3, lines 35-40; col. 7, lines 53-67 and col. 8, lines 4-6).

Regarding claims 10-11, Ueno et al. **teaches** a controller for controlling said driver to drive said LCD a plurality of times to form at least one image in at least one portion of said LCD by repeatedly scanning said at least one portion, and wherein said controller is capable of changing the number of driving times for forming at least one image (col. 2, lines 50-61).

Relative to claim 19, it would have been obvious to a person of ordinary skill in the art at the time of the invention that a LCD display device could display a multi-tone image when the first drive method is used in that the first method provides the means to input a image to said LCD.

4. Claims 2-7 and 12-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ueno et al. as applied to claim 1 in item 3 hereinabove, and further in view of Huang et al. (USP 5,748,277).

Relative to claims 2 and 7, Ueno et al. **does not teach** a display device wherein the LCD is capable of keeping an image having been formed thereon without consuming electric power; or wherein the image formed on the LCD by using a second drive method is capable of remaining without consumption of electric power.

Huang et al. **teaches** a visual display utilizing a chiral nematic, (cholesteric) reflective bistable liquid crystal material and an electronic drive system for activating the display using efficient operation to provide highspeed updating of the display (col. 1, lines 7-11; col. 2, lines 43-67; col. 3, lines 1-36 and Fig. 7). Huang et al. further **teaches** said LCD wherein the LCD is capable of keeping an image having been formed thereon without consuming electric power (col. 3, lines 15-17 and col. 6, lines 7-11).

Relative to claims 3-4 and 12-13, Huang et al. **teaches** said liquid crystal material comprises a cholesteric liquid crystal material; or wherein said cholesteric liquid crystal material comprises a chiral nematic liquid crystal material (col. 1, lines 7-11 and col. 2, lines 45-48 and 55-60).

Regarding claim 5, Huang et al. **teaches** a LCD wherein a first time period required to renew an image on said LCD by using said first drive method is longer than a second time period required to renew an image on said LCD by using said second drive method (col. 16 lines 15-16 and 23-24).

Relative to claim 6, Huang et al. **teaches** said LCD wherein a first electric power consumption required to keep an image on said liquid crystal display by using said first drive method is greater than a second electric power consumption required to keep an image on said LCD by using said second drive method (col. 5, lines 58-67 and col. 6, lines 1-11).

Relative to claim 14, it is well understood in the art and in common practice wherein a LCD comprise a plurality of scan electrodes and a plurality of data electrodes.

5. Claims 15-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ueno et al. taken with Huang et al. as applied to claim 14 in item 4 hereinabove, and further in view of Knapp (USP 6,069,603).

Regarding claims 15-17, Ueno et al. taken with Huang et at. **does not teach** a display device wherein said controller is capable of controlling a driver so as to execute the steps of:

(a) addressing a plurality of said scan electrodes and a plurality of said data electrodes to reset an area of said liquid crystal display defined by the plurality of scan electrodes and the plurality of

data electrodes; (b) addressing a plurality of scan electrodes sequentially; (c)addressing selected ones of said data electrodes synchronizing with the sequential addressing of the scan electrodes in the step (b); and (d) repeating the steps (b) and (c)a plurality of times without interposing the step (a); or displaying an image that corresponds to image data on a LCD without applying electrical voltage to any one of the scanning electrodes and data electrodes.

Knapp **teaches** a method of driving a matrix display device (col. 2, lines 66-67 and col. 3, lines 1-63). Knapp further **teaches** a display device wherein said controller is capable of controlling a driver (col. 4, lines 58-62) so as to execute the steps of: (a) addressing a plurality a of said scan electrodes and a plurality of said data electrodes to reset an area of said liquid crystal display defined by the plurality of scan electrodes and the plurality of data electrodes; (b) addressing a plurality of scan electrodes sequentially; (c)addressing selected ones of said data electrodes synchronizing with the sequential addressing of the scan electrodes in the step (b) (col. 4, lines 36-44); and (d) repeating the steps (b) and (a)a plurality of times without interposing the step (a).

It would have been obvious to a person of ordinary skill in the art at the time of the invention to incorporate the features as taught by Knapp in the device as taught by Ueno et al. in order to incorporate the means to control addressing the scan and data electrodes of the LCD. It being understood that the display device as taught by Ueno et al. (by its nature) will include the same features for addressing the scan and data electrodes of the Ueno et al. device. It would have been further obvious to a person or ordinary skill in the art at the time of the invention that steps

(b) and (c)could be repeated without having to interpose step (a) because once the LCD area is established it would take a required function step to change it.

Regarding claim 17, Huang et al. **teaches** displaying an image that corresponds to image data on a LCD without applying electrical voltage to any one of the scanning electrodes and data electrodes (col. 1, lines 43-49).

6. Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ueno et al. as applied to claim 1 in item 3 hereinabove, and further in view of Nomura et al. (USP 6,252,571).

Relative to claim 20, Ueno et al. **does not teach** a display device wherein each of said first drive method and said second drive methods has a resetting period for resetting said LCD, a selecting period for selecting at least part of said LCD, and a maintaining period for maintaining a display on said LCD.

Nomura et al. **teaches** a LCD device and its drive method and the drive circuit and power supply circuit device used therein (col. 2, lines 53-67; col. 3, lines 1-67; col. 4, lines 1-29). Nomura et al. further **teaches** a display device wherein each of said first drive method and said second drive methods has a resetting period for resetting said LCD, a selecting period for selecting at least part of said LCD, and a maintaining period for maintaining a display on said LCD (col. 9, lines 18-44).

It would have been obvious to a person of ordinary skill in the art at the time of the invention to incorporate in the device as taught by Ueno et al. the features as taught by Nomura et al. in that they are features well understood in the art and in commonly incorporated in display devices.

Claim Rejections - 35 USC § 112

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. Relative to claim 18, line 2; the definition of "a two-value image" has to be clearly stated in the claim.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

U. S. Patent No.	5,598,229	Okada et al.
U. S. Patent No.	5,384,067	Doane et al.
U. S. Patent No.	5,274,484	Mochizuki et al.
U. S. Patent No.	5,251,048	Doane et al.

Responses

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Vincent E. Kovalick** whose telephone number is **(703) 306-3020**. The examiner can normally be reached Monday-Thursday from 9:00 a.m. to 4:00 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, **Bipin Shalwala**, can be reached at **(703) 305-4938.**

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

Washington, D.C. 20231

or faxed to:

(703) 872-9314 (for Technology Center 2600 only)

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA, Sixth Floor (Receptionist).

Inquires

11. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is **(703) 306-0377**.

Vincent E. Kovalick

BIPIN SHALWALA
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600